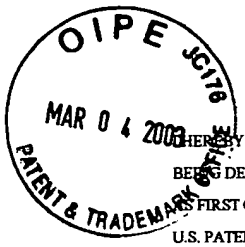
#13
3/13/03
A.W.




I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE U.S. POSTAL SERVICE AS FIRST CLASS MAIL ADDRESSED TO: U.S. PATENT AND TRADEMARK OFFICE, P.O. BOX 2327, ARLINGTON, VA 22202, ON DATE OF DEPOSIT: FEBRUARY 28, 2003. PERSON MAKING DEPOSIT: ANNE VACHON DOUGHERTY

Anne Vachon Dougherty 2/28/03
Signature & Date

RECEIVED
MAR 1 1 2003
Technology Center 2100

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Re Application of : February 27, 2003

H.W. ADAMS, ET AL Group Art No.: 2175

Serial No.: 09/421,139 Examiner: S. Rimell

Filed: October 19, 1999 Anne Vachon Dougherty
3173 Cedar Road
Yorktown Hts, NY
10598

Title: SYSTEM AND METHOD FOR INTERACTIVE READING AND LANGUAGE INSTRUCTION

**REQUEST FOR CONSIDERATION**

Commissioner for Patents

Sir:

In response to the Office Communication dated January 27, 2003, Applicants submit the following response to the two matters raised by the Examiner:

1) Applicants filed a submission entitled "Amendment" on November 18, 2002. The Examiner has noted that the submission contains no amendments to either the Specification or the Claims and requests clarification. Applicants acknowledge that the

submission contains no changes to the Specification or the Claims. Applicants nonetheless respectfully request consideration of the arguments submitted therein in support of the patentability of the subject invention.

2) The documents in support of the Declaration of Prior Invention are enclosed herewith. The Declaration establishes that the claimed invention was invented prior to the effective date of the Mostow patent. While Applicants are able to swear behind the Mostow reference, Applicants believe that the Mostow patent does not anticipate the invention as claimed, as argued in the response filed on November 18, 2002.

In light of the foregoing, it is respectfully requested that the Response(s) be entered, the rejections be reconsidered and withdrawn, and the remaining Claims 1-9, 11-14, 16-19, 21-23, 31-36, 38-39 and 44-51 be passed to issuance.

Respectfully submitted,
H. W. Adams, et al

By: Anne Vachon Dougherty
Anne Vachon Dougherty
Registration No. 30,374
Tel. (914) 962-5910

Enclosures

OIPE
MAR 0 4 2003
PATENT & TRADEMARK OFFICE

Jane Dougherty Fax 962-1973

RECEIVED
MAR 1 1 2003
Technology Center 2100

Andre,

Here is a screen dump of the archive made on 01/03/96. It references files via their last modification date, unfortunately, but you can see that there are files unmodified since 06/12/95.

On subsequent pages I have included the contents of some of the files.

| Name | Date | Time | Size | Ratio | Packed Path |
|---|---|---|---|---|---|
| back.bat | 11/07/95 | 12:52 | 128 | 36% | 82 |
| get.bat | 11/07/95 | 12:52 | 46 | 33% | 31 |
| list.bat | 11/18/95 | 22:01 | 33 | 0% | 33 |
| make.bat | 11/20/95 | 12:16 | 22 | 0% | 22 |
| update.bat | 11/07/95 | 15:54 | 36 | 0% | 36 |
| bgtbl.c | 11/18/95 | 22:30 | 2,228 | 84% | 358 |
| book.c | 01/03/96 | 12:05 | 4,962 | 84% | 787 |
| color.c | 10/13/95 | 14:53 | 369 | 51% | 180 |
| file.c | 11/20/95 | 15:44 | 1,035 | 49% | 530 |
| getid.c | 01/03/96 | 12:01 | 6,999 | 73% | 1,877 |
| global.c | 11/20/95 | 14:38 | 4,577 | 66% | 1,565 |
| init.c | 11/20/95 | 14:59 | 3,829 | 69% | 1,179 |
| page1.c | 09/18/95 | 15:01 | 914 | 66% | 310 |
| paint.c | 11/20/95 | 14:36 | 8,608 | 80% | 1,757 |
| parse.c | 01/03/96 | 11:56 | 2,686 | 64% | 972 |
| perform.c | 11/08/95 | 17:22 | 6,269 | 73% | 1,692 |
| read.c | 11/20/95 | 15:55 | 14,317 | 74% | 3,789 |
| res.c | 11/07/95 | 12:50 | 1,453 | 63% | 542 |
| rgb.c | 11/07/95 | 12:48 | 2,198 | 62% | 825 |
| sndout.c | 11/20/95 | 14:40 | 2,579 | 61% | 1,013 |
| tables.c | 11/20/95 | 12:16 | 5,602 | 87% | 741 |
| text.c | 11/20/95 | 15:29 | 23,901 | 81% | 4,604 |
| vtd.c | 11/20/95 | 15:29 | 9,180 | 74% | 2,404 |
| vtdmsg.c | 11/14/95 | 16:41 | 11,676 | 79% | 2,410 |
| dialogs.dlg | 11/18/95 | 22:45 | 1,619 | 65% | 565 |
| dialogs.h | 11/18/95 | 20:43 | 520 | 76% | 127 |
| global.h | 11/20/95 | 14:38 | 5,369 | 70% | 1,604 |
| read.h | 01/03/96 | 11:42 | 7,321 | 68% | 2,314 |
| resource.h | 11/18/95 | 19:04 | 489 | 48% | 254 |
| struct.h | 11/07/95 | 12:51 | 2,060 | 66% | 697 |
| messy.ico | 10/25/95 | 22:19 | 766 | 69% | 238 |
| reader.ico | 06/12/95 | 15:51 | 766 | 73% | 208 |
| read.rc | 01/03/96 | 11:59 | 6,422 | 74% | 1,658 |

OIPE JC170
MAR 0 4 2003
PATENT & TRADEMARK OFFICE

RECEIVED
MAR 1 1 2003
Technology Center 2100

This is the file READ.C

```
#include "read.h"
#include "global.h"
#include "dialogs.h"
#include <windows.h>
#include <smapi.h>
#include <mmsystem.h>


int APIENTRY WinMain (HINSTANCE hInstance, HINSTANCE hPrevInstance, LPSTR lpszC-
mdLine,
        int nCmdShow)
{
  /*
   * local storage
   */
  HWND   hWnd;
  MSG    msg;

  /*
   * routines called
   */
  LRESULT CALLBACK WndProc(HWND, UINT, WPARAM, LPARAM);
  void   initRes();    /* init resolution values */
  void   initMem();    /* init memory */

  if (!hPrevInstance){
    /*
     * register the main window class
     */

    wndclass.style         = CS_HREDRAW | CS_VREDRAW | CS_OWNDC;
    wndclass.lpfnWndProc   = WndProc;
    wndclass.cbClsExtra    = 0;
    wndclass.cbWndExtra    = 0;
    wndclass.hInstance     = hInstance;
    wndclass.hIcon         = LoadIcon(hInstance, "GAME_ICO");
    wndclass.hCursor       = NULL;
    wndclass.hbrBackground = GetStockObject(BLACK_BRUSH);
    wndclass.lpszMenuName  = NULL;
    wndclass.lpszClassName = "MainClass";
    if (!RegisterClass (&wndclass))
      return(0);
  }
```

```
/*
 * get path to user data directory
 */
GetPrivateProfileString("Paths", "Users", "", userPath,
                    SIZ_PATH_BUF, "watchme.ini");

GetPrivateProfileString("Paths", "Wave", "", wavPath,
                    SIZ_PATH_BUF, "watchme.ini");

/*
 * get the number of attempts to make before advancing to the next
 * word
 */
GetPrivateProfileString("Parms", "Attempts", "5", cBuf,
                    SIZ_ERR_BUF, "watchme.ini");
attempts = atoi(cBuf);

/*
 * get whether to provide feedback
 */
GetPrivateProfileString("Parms", "Feedback", "TRUE", cBuf,
                    SIZ_ERR_BUF, "watchme.ini");
feedBack = lstrcmp("TRUE", cBuf) ? FALSE : TRUE;


/*
 * get the minimum score on words for a match
 */
GetPrivateProfileString("Parms", "Score", "10", cBuf,
                    SIZ_ERR_BUF, "watchme.ini");
minScore = atoi(cBuf);

/*
 * get the rejection threshold
 */
GetPrivateProfileString("Parms", "Reject", "5", cBuf,
                    SIZ_ERR_BUF, "watchme.ini");
rejectVal = atoi(cBuf);



initRes();        /* initialize the resolution values */
vtdStat = 0;      /* flag VTD is uninitialized */
initFlg = FALSE;  /* flag user not initialized */
advFlg = FALSE;   /* advance word active flag */
appState = STAT_READ; /* init state to reading */
```

```
    hFile = INVALID_HANDLE_VALUE; /* flag no data file open */
    initMem();        /* initialize memory */


    /*
     * load the frequently used strings
     */
    LoadString(hInstance, S_APPNAME, appName, SIZ_STR_BUF);

    /*
     * create the program window
     */
    hInst = hInstance;
    hWnd = CreateWindow ("MainClass", appName, WS_POPUP,
          0, 0, width, height+capY, NULL, NULL, hInstance, NULL);
    hCursor = LoadCursor(NULL,IDC_ARROW);
    SetCursor(hCursor);
    ShowWindow (hWnd, nCmdShow);   /* display the window */

    while(GetMessage(&msg, (HWND)NULL, (UINT)NULL, (UINT)NULL)){
      TranslateMessage(&msg);
      DispatchMessage(&msg);
    }
    return(msg.wParam);
}

LRESULT CALLBACK WndProc(HWND hWnd, UINT wMessage, WPARAM wParm,
LPARAM lParm)
{
    /*
     * local storage
     */
    PAINTSTRUCT ps;
    LONG       wID;       /* control ID */
    int        rc;        /* return code */
    SM_MSG     reply;     /* VTD reply message */
    char       msgBuf[SIZ_ERR_BUF]; /* error string message buffer */
    HBRUSH     hTempBrush; /* temp brush used to free custom brushes */
    DWORD      errCode;   /* file system error code */
    int        nTimer;    /* # of timer for this application */

    char       *kidImage[] = {
                    "asian girl",
                    "black girl",
                    "hispanic girl",
                    "white girl",
```

```
                "asian boy",
                "black boy",
                "hispanic boy",
                "white boy",
                };


  static int expLeft;
  static int expRight;
  static int expTop;
  static int expBot;


  /*
   * routines called
   */
  void initGraph(HWND);        /* init graphics objects */
  int  vtdOpen(HWND);          /* open the VTD session */
  void vtdErr(HWND, int, int);  /* display VTD error */
  void paint(HWND);            /* repaint the window */
  void vtdMsg(HWND, UINT, WPARAM, LPARAM); /* procees VTD messages */
  BOOL CALLBACK getID(HWND, UINT, WPARAM, LPARAM);    /* get user ID dialog
proc */
  void fileErr(int, DWORD);     /* report file error */
  void advWord(HWND);           /* advance to the next word */
  void caution();              /* display the word in caution text color */
  void selWord(HWND, WORD, WORD); /* try to select a word */
  void advFin(HWND);           /* finish the advance to the next word */
  void sndOut(HWND);           /* play a sound */
  void playNext(HWND);         /* play back the next set of words */
  void raise(HWND);            /* raise the curtain */
  BOOL tstNext(HWND, WORD, WORD); /* test if next page button hit */
  BOOL tstPrev(HWND, WORD, WORD); /* test if previous page button hit */
  int  micOn(HWND);            /* turn on the microphone */
  BOOL wrtLog(HWND, char *);    /* write to the log file */
void perform(HWND);/* begin reading the perfromance */


  wID = LOWORD(wParm);

  switch (wMessage)
  {
    case WM_TIMER:
      if (appState == STAT_CURTAIN)
        raise(hWnd);
      break;
```

```
        case WM_COMMAND:
          switch( wID ) {
             case IDM_CONNECT_ID:
                vtdMsg(hWnd, wMessage, wParm, lParm);
                break;
          }
          break;

        case WM_CLOSE:
          DestroyWindow(hWnd);
          break;

        case WM_CREATE:
          nTimer = SetTimer(hWnd, 1,50, (TIMERPROC)NULL); /* every 1/20 second */
          if (!nTimer){
             LoadString(hInst, S_TIMER, errBuf, SIZ_ERR_BUF);
             MessageBox(hWnd, errBuf, appName, MB_ICONSTOP | MB_APPLMODAL);
             PostMessage(hWnd, WM_CLOSE, 0, 0L);
          }
          initGraph(hWnd);   /* init the graphics objects */
          break;

        case WM_RBUTTONDOWN:
          if (appState == STAT_READ){
             if ((vtdStat & VS_LISTEN) && (!advFlg)){
                caution();
                advWord(hWnd);
             }
          }
    break;

        case WM_LBUTTONDOWN:
          if (appState == STAT_READ){
             if ((vtdStat & VS_LISTEN) && (!advFlg))
                selWord(hWnd, LOWORD(lParm), HIWORD(lParm));
          }
          if (appState == STAT_PAGE){
             /*
              * not previous -
              * test if a request to goto the next page
              */
             if(!tstNext(hWnd, LOWORD(lParm), HIWORD(lParm))){
                /*
                 * next page not requested -
                 * test if a request to goto the previous page
```

```
            */
            if (curPage){
              tstPrev(hWnd, LOWORD(lParm), HIWORD(lParm));
            }
          }
        }
        break;

      case WM_PAINT:
        BeginPaint(hWnd, &ps);

        if ((ps.rcPaint.left != ps.rcPaint.right) &&
            (ps.rcPaint.top != ps.rcPaint.bottom))
        {
#ifdef SKIP
          if ((ps.rcPaint.left == expLeft) &&
            (ps.rcPaint.right == expRight) &&
            (ps.rcPaint.top == expTop) &&
            (ps.rcPaint.bottom == expBot))
          {
#endif
            paint(hWnd);
            /*
             * if this is the first time the window has been drawn
             * load the speech recognition software
             */
            if (!initFlg){
              initFlg = TRUE;
              /*
               * get the user ID
               */
              rc = DialogBox(hInst, "ID", hWnd, &getID);
              if (!rc){
                /*
                 * error opening user data file
                 */
                PostMessage(hWnd, WM_CLOSE, 0, 0L);
              }else{
                /*
                 * file created - log header info
                 */
                wrtLog(hWnd, kidImage[curKid]);
                wsprintf(cBuf, " age %d\n", age);
                wrtLog(hWnd, cBuf);

                wsprintf(cBuf, "Minimum score is %d\n", minScore);
```

```
                    wrtLog(hWnd, cBuf);
                    wsprintf(cBuf, "Rejection threshold is %d\n", rejectVal);
                    wrtLog(hWnd, cBuf);

                    /*
                     * display the hour glass pointer
                     */
                    hCursor = LoadCursor(NULL, IDC_WAIT);
                    SetCursor(hCursor);
                    rc = vtdOpen(hWnd);
                    if (rc != SM_RC_OK){
                      PostMessage(hWnd, WM_CLOSE, 0, 0L);
                      vtdStat = VS_ERROR;
                    }
                  }
                }
#ifdef SKIP
            }else{
                  expLeft = ps.rcPaint.left;
                  expRight = ps.rcPaint.right;
                  expTop = ps.rcPaint.top;
                  expBot = ps.rcPaint.bottom;
                  InvalidateRect( hWnd, NULL, TRUE);
            }
#endif
          }
          EndPaint(hWnd,&ps);
          break;

        case WM_DESTROY:
          /*
           * Disconnect from the Recognition Engine.
           */
          if (vtdStat & VS_CONN){
            SmDisconnect( 0, NULL, &reply );

            SmGetRc( reply, &rc);
            if (rc != SM_RC_OK){
              LoadString(hInst, S_VTD_DIS, msgBuf, SIZ_ERR_BUF);
              wsprintf(errBuf, "%s, rc= %d\n", msgBuf, rc);
              MessageBox(hWnd, errBuf, appName, MB_OK | MB_ICONHAND |
MB_APPLMODAL);
            }
          }

          if (vtdStat & VS_OPEN){
```

```
            rc = SmClose();


            if (rc != SM_RC_OK){
               LoadString(hInst, S_VTD_CLOSE, msgBuf, SIZ_ERR_BUF);
               wsprintf(errBuf, "%s, rc= %d\n", msgBuf, rc);
               MessageBox(hWnd, errBuf, appName, MB_OK | MB_ICONHAND |
MB_APPLMODAL);
            }
         }

         /*
          * close the data file if open
          */
         if (hFile != INVALID_HANDLE_VALUE){
            if (!CloseHandle(hFile)){
               errCode = GetLastError();
               fileErr(S_FILE_CLOSE, errCode);
            }
         }

         /*
          * if mci device active - close it
          */
         if (mciActive)
   mciSendCommand(uDeviceID, MCI_CLOSE, (DWORD)0, (DWORD)NULL);

         /*
          * create a stock pen and brush to free custom objects
          */
         hTempBrush = GetStockObject(BLACK_BRUSH);

         /*
          * delete the brushes
          */
         SelectObject(hDC, hTempBrush);

         /*
          * delete the fonts
          */
         SelectObject(hDC, hOldFont);
         DeleteObject(hTextFont);
         DeleteObject(hHiFont);


         /*
```

```
            * delete the DCs and clear maps
            */
            DeleteDC(hPicDC);
            DeleteObject(hClrPicMap);

            /*
            * delete the off screen dc and bitmap
            */
            DeleteDC(hOffDC);
            DeleteObject(hOffMap);

            /*
            * delete the stretch bitmap and dc
            */
if (!vgaFlg){
DeleteDC(hStretchDC);
DeleteObject(hStretchMap);
}

            PostQuitMessage(0);
            break;

        case WM_SETCURSOR:
            SetCursor(hCursor);
            break;

case MM_MCINOTIFY:
mciSendCommand(uDeviceID, MCI_CLOSE, (DWORD)0, (DWORD)NULL);
            mciActive = FALSE;
if (sndIns == sndRem){
sndStat = SNQ_IDLE;
/*
* sounds currently idle -
* test for states needing the wave file to complete
*/
              switch (appState)
              {
case STAT_CORRECT:
/*
* turn on the microphone
*/
micOn(hWnd);
advFin(hWnd);  /* complete the advance */
break;

case STAT_MIC:
```

```
/*
 * turn on the microphone
 */
micOn(hWnd);
break;

case STAT_PERF:
if ((curIndex < wordCnt))
playNext(hWnd);
break;

case STAT_TOP:
perform(hWnd);
break;

            case STAT_WAIT:
               appState = STAT_PAGE;
               hCursor = LoadCursor(NULL,IDC_ARROW);
               SetCursor(hCursor);
               break;
}
}else
sndOut(hWnd);
break;

#ifdef SKIP
     case WM_QUERYNEWPALETTE:
        RealizePalette(hDC);
        InvalidateRect(hWnd, NULL, TRUE);
        break;
#endif
     default:
        return(DefWindowProc(hWnd, wMessage, wParm, lParm));
  }
  return(0L);
}
```

Here is the file TEXT.C

```
#include "read.h"
#include "struct.h"
#include "global.h"


/*
 * common storage for this module only
 */
static WORD   spcLeft;      /* space left on a line */
static WORD   yAdr;         /* y adr of current line */
static WORD   xAdr;         /* x adr of current word */
static WORD   charCnt;      /* count of characters in a word */
static char   *pWord;       /* ptr to current word */
static WORD   state;        /* parse state */
static int    margin;       /* left margin of a page */
static layOut *pForm;       /* ptr to page format */

void   initText(HWND hWnd)
{
  /*
   * local storage
   */
  char   *pStr;        /* ptr to string to be read */
  SIZE   extent;       /* text extents */
  BOOL   bldFlg;       /* continue building words */
  int    wordW;        /* width of word in pixels */
  int    i;            /* temp counter */

  /*
   * routines called
   */
  void addWord();      /* add a word to the list */

  /*
   * external storage referenced
   */
  extern char      book[];    /* the book's text */
  extern int       pageType[]; /* page format type table */


  /*
   * init the page index array
   */
```

```
for (i=0; i < MAX_PAGE; i++)
   pageIndex[i] = -1;


SelectObject(hDC, hHiFont);
numPages = 0;
pForm = pPageForms[pageType[numPages]];
pStr = book;
yAdr = pForm->y;
margin = pForm->left;
xAdr = margin;
pWord = pStr;
spcLeft = pForm->width;
wordCnt = charCnt = 0;
bldFlg = TRUE;
state = 0;
do {
   switch (*pStr)
   {
      case 0:
         /*
          * end of text
          */
         if (charCnt){

            /*
             * if there was a word prior to the end of text
             * add it to the word list
             */
            addWord();
         }
         bldFlg = FALSE;
         break;

      case ' ':
         /*
          * space
          */
         if (state){
            /*
             * if there was a word prior to the space
             * add it to the word list
             */
            addWord();
         }
         state = 0;  /* reset state */
```

```
        /*
         * adjust the x adr for the space
         */
        if (spcLeft != pForm->width){
          /*
           * if not on the left margin of the line
           * add in the width for the space
           */
          GetTextExtentPoint(hDC, pWord, 1, &extent);
          wordW = (WORD) extent.cx;
          if (wordW > spcLeft){
            yAdr += pForm->yInc;
            spcLeft = pForm->width;
            xAdr = margin;
          }else{
            xAdr += wordW;
            spcLeft -= wordW;
          }
        }
        pStr++;
        pWord = pStr;
        break;

      case '"':
      case '.':
      case ',':
      case '!':
      case '?':
        /*
         * if starting a word -
         *  add the quote as a word
         */
        if (!state && *pStr == '"'){
          state = ST_BEG;
          charCnt++;
          addWord();
          pStr++;
          pWord = pStr;

        }else if (state == ST_WORD){
          /*
           * if in a word -
           * terminate the word and add it to the list
           */
          addWord();
```

```
      /*
       * start parsing the ending puctuation
       */
      state = ST_END;
      charCnt++;
      pWord = pStr;
      pStr++;
    }else{
      /*
       * if in ending puctuation -
       * parse the character
       */
      charCnt++;
      pStr++;
    }
    break;

  case '#':
    /*
     * new paragraph
     */
    if (state){
      /*
       * if there was a word prior to the space
       * add it to the word list
       */
      addWord();
    }
    /*
     * start a new line
     */
    state = 0;  /* reset state */
    yAdr += (pForm->yInc * 3) / 2;
    spcLeft = pForm->width;
    xAdr = margin;
    pStr++;
    pWord = pStr;
    break;

  case '@':
    /*
     * new page
     */
    if (state){
      /*
       * if there was a word prior to the space
```

```
            * add it to the word list
            */
           addWord();
        }
        /*
         * start a new page
         */
        numPages++;

        state = 0;  /* reset state */
        pForm = pPageForms[pageType[numPages]];
        yAdr = pForm->y;
        margin = pForm->left;
        xAdr = margin;
        pWord = pStr;
        spcLeft = pForm->width;
        pStr++;
        pWord = pStr;
        break;

    case '*':
        /*
         * new column
         */
        if (state){
           /*
            * if there was a word prior to the space
            * add it to the word list
            */
           addWord();
        }
        /*
         * start a new column
         */
        state = 0;  /* reset state */
        yAdr = pForm->y;
        margin = pForm->right;
        xAdr = margin;
        pWord = pStr;
        spcLeft = pForm->width;
        pStr++;
        pWord = pStr;
        break;

    default:
        /*
```

```
            * normal character - parse it for now
            */
            state = ST_WORD;
            charCnt++;
            pStr++;
            break;
        }
    }while (bldFlg);
    wordFlg = FALSE;   /* flag the words have been built */
    curIndex = -1;     /* flag there is no hightlighted word */
}

/*
 * add a word to the list
 */
void   addWord()
{

    /*
     * local storage
     */
    SIZE   extent;       /* text extents */
    int    wordW;        /* width of word in pixels */
    WORD   prev;         /* prev word index */

    GetTextExtentPoint(hDC, pWord, charCnt, &extent);
    wordW = (WORD) extent.cx;
    if (wordW > spcLeft){
        /*
         * there is no space left on the line
         * begin a new line
         */
        yAdr += pForm->yInc;
        spcLeft = pForm->width;
        xAdr = margin;

        /*
         * need to find if there  is beginning puctuation
         */
        if (state == ST_END)
            prev = wordCnt -2;
        else if (state == ST_WORD)
            prev = wordCnt -1;
        else
            prev = (WORD) -1;
        if ((prev > 0) && (words[prev].type == ST_BEG)){
```

```
            words[prev].x = xAdr;
            words[prev].y = yAdr;
            xAdr += words[prev].width;
            spcLeft -= words[prev].width;
        }


        /*
         * if in ending puctuation move the preceeding word
         */
        if (state == ST_END){
            words[wordCnt-1].x = xAdr;
            words[wordCnt-1].y = yAdr;
            xAdr += words[wordCnt-1].width;
            spcLeft -= words[wordCnt-1].width;
        }
    }
    words[wordCnt].x = xAdr;
    words[wordCnt].width = wordW;
    words[wordCnt].y = yAdr;
    words[wordCnt].str = pWord;
    words[wordCnt].cnt = charCnt;
    words[wordCnt].type = state;
    words[wordCnt].sndType = PLAY_NONE;
    words[wordCnt].page = numPages;
    if (pageIndex[numPages] < 0)
        pageIndex[numPages] = wordCnt;
    wordCnt++;
    charCnt = 0;
    xAdr += wordW;
    spcLeft -= wordW;
}

/*
 * display the text
 */

void    dspText(HWND hWnd)
{
    /*
     * local storage
     */
    int     i;          /* temp counter */
#ifdef SIZEIT
    RECT    rect;
#endif
```

```
int    index;     /* display active words index */

/*
 * routines called
 */
void nextWord(HWND);       /* display the next word to read */
BOOL wrtLog(HWND, char *); /* write to the log file */
void hiLight(int);         /* highlight a word of text */

/*
 * if not ready to listen - do not display the text
 */
if (!(vtdStat & VS_LISTEN)){
   txtFlg = TRUE;    /* flag ready to display text */
   return;
}
SelectObject(hDC, hTextFont);
SetTextColor(hDC, textColor);
SetBkMode(hDC, TRANSPARENT);

 for (i = pageIndex[curPage]; (i < wordCnt) && (words[i].page == curPage); i++) {
#ifdef SIZEIT
    if (words[i].type == ST_WORD){
       rect.left = words[i].x;
       rect.right = words[i].x + words[i].width;
       rect.top = words[i].y - pLay->top;
       rect.bottom = words[i].y + pLay->bot;
       FillRect(hDC, &rect, GetStockObject(GRAY_BRUSH));

    }
#endif
    TextOut(hDC, words[i].x, words[i].y, words[i].str, words[i].cnt);
  }
  if (curIndex >= 0){
    /*
     * highlight the words being played
     */
    index = begIndex;
    while (index <= curIndex){
      if (((appState == STAT_READ) && (words[index].type == ST_WORD))||
          (words[index].sndType != PLAY_NONE))
      {
        hiLight(index);
      }
      index++;
    }
```

```
  }else{
    if (appState == STAT_READ){
      nextWord(hWnd); /* first time on this page */
      wsprintf(cBuf, "Next Story Word - %s \n",curWord);
      wrtLog(hWnd, cBuf);
    }
  }
}

void nextWord(HWND hWnd)
{

  /*
   * routines called
   */
  void   copyWord(short, char *); /* copy a story word into curWord */
  void   sndAdd(HWND, int, int);  /* play a sound wave file */
  void   normal(int);      /* rewrite highlight text as normal */
  void   hiLight(int);     /* highlight a word of text */
  BOOL   micOff(HWND);  /* turn off the microphone */

  /*
   * display the previous word normally again
   */
  SetBkMode(hDC, TRANSPARENT);
  if (curIndex >= 0){
    normal(curIndex);
  }

  /*
   * pt to the next word in the story
   */
  do{
    curIndex++;
    if ((curIndex >= wordCnt) || (words[curIndex].page > curPage)){
      curIndex = -1;
      curWord[0] = 0;
      appState = STAT_WAIT;
      hCursor = LoadCursor(NULL, IDC_WAIT);
      SetCursor(hCursor);
micOff(hWnd);  /* turn off the microphone */
machMic = FALSE;
      sndAdd(hWnd, SND_PHR, PHR_END_READ);  /* cheer at the end of the reading */
      return;
    }
  }while (words[curIndex].type != ST_WORD);
```

```
  copyWord(curIndex, curWord);  /* copy the story word into curWord */

  /*
   * highlight the current word
   */
  hiLight(curIndex);
  trys = 0;  /* reset the trys counter */
  begIndex = curIndex;
}

/*
 * advWord - user requested advance to the next word
 */
void  advWord(HWND hWnd)
{
/*
 * local storage
 */
BOOLstatus;/* microphone status */

   /*
    * routines called
    */
   BOOL   micOff(HWND);      /* turn off the microphone */
   void   advFin(HWND);      /* advance to the next word */
   void   playCorrect(HWND); /* play the correction phrases */

   if (feedBack){
      advFlg = TRUE;        /* flag now advancing to the next word */
      status = micOff(hWnd); /* turn off the microphone */
 machMic = FALSE;
      if (status)      /* mic already off - play the correction */
         playCorrect(hWnd);
 else
 appState = STAT_REQCOR;

    }else{
      advFin(hWnd);
    }
  }

  /*
   * playCorrect - play the correct word
   */
  void  playCorrect(HWND hWnd)
```

```
{
  /*
   * routines called
   */
   void sndAdd(HWND, int, int);  /* play a sound wave file */


appState = STAT_CORRECT;
   sndAdd(hWnd, SND_PHR, corWav);   /* play the correction wave file */
   /*
    * advance to the next wave file
    */
   corWav++;
   if (corWav >= PHR_COREND)
      corWav = PHR_CORBEG;

   sndAdd(hWnd, SND_WORD, curIndex);   /* play the current word */
 }

 /*
  * advFin - complete the user request to advance to the next word
  */
 void  advFin(HWND hWnd)
 {

    /*
     * routines called
     */
     BOOL wrtLog(HWND, char *);  /* write to the log file */
     void nextWord(HWND);        /* display the next word to read */

     wsprintf(cBuf, "Advanced past - %s\n\n", curWord);
     wrtLog(hWnd, cBuf);

     /*
      * set playback entry to be play a wave file
      */
     words[curIndex].id = curIndex;
     words[curIndex].sndType = PLAY_WAVE;

     nextWord(hWnd);    /* pt to the next word to be read */

     /*
      * log the next word to be recognized
      */
     wsprintf(cBuf, "Next Story Word - %s \n",curWord);
```

```
  wrtLog(hWnd, cBuf);

  advFlg = FALSE;    /* flag now complete */
}

/*
 * selword - select the word currently under the mouse
 */
void selWord(HWND hWnd, WORD xPos, WORD yPos)
{

  /*
   * local storage
   */
  int    i;          /* temp counter */

  /*
   * routines called
   */
  void   normal(int);      /* rewrite highlight text as normal */
  void   hiLight(int);     /* highlight a word of text */
  void   copyWord(short, char *); /* copy a story word into curWord */
  BOOL   tstNext(HWND, WORD, WORD); /* test if next page button hit */
  BOOL   tstPrev(HWND, WORD, WORD); /* test if previous page button hit */
  BOOL   tstMic(HWND, WORD, WORD); /* test if microphone button hit */
  BOOL   wrtLog(HWND, char *);   /* write to the log file */

  /*
   * test if a request to go to the previous page
   */
  if (curPage){
    if (tstPrev(hWnd, xPos, yPos))
      return;
  }

  /*
   * test if a request to go change mic state
   */
  if (dspMic){
    if (tstMic(hWnd, xPos, yPos))
      return;
  }

  /*
   * test if a request to goto the next page
   */
```

```
if (tstNext(hWnd, xPos, yPos))
   return;



/*
 * look for a word that is under the cursor
 */
for (i=pageIndex[curPage]; (i < wordCnt) && (words[i].page == curPage); i++){

   if (((words[i].y - pLay->top) <= yPos) &&
      ((words[i].y + pLay->bot) >= yPos) &&
      (words[i].x <= xPos) &&
      ((words[i].x + words[i].width) >= xPos))
   {
      if (words[i].type == ST_WORD){
         /*
          * clicked on a valid word - advance to it
          * display the previous word normally again
          */
         SetBkMode(hDC, TRANSPARENT);
         if (curIndex >= 0){
            normal(curIndex);
         }
         /*
          * move the word into the current word buffer
          */
         begIndex = curIndex = i;
         copyWord(curIndex, curWord);   /* copy the story word into curWord */

         /*
          * highlight the current word
          */
         hiLight(curIndex);
         trys = 0;   /* reset the trys counter */

         /*
          * log that the new word was selected
          */
         wsprintf(cBuf, "\nSelected - %s\n", curWord);
         wrtLog(hWnd, cBuf);
      }
      break;
   }
}
```

```
void copyWord(short index, char *pBuf)
{
  /*
   * local storage
   */
  char   *pSrc;     /* temp ptr to word */
  short  i;         /* temp counter */

  /*
   * move the word into the current word buffer
   */
  pSrc = words[index].str;
  for (i=0; i < words[index].cnt; i++)
     *pBuf++ = *pSrc++;
  *pBuf = 0;
}

/*
 * hiLight - highlight a word
 */
void   hiLight(int index)
{
   /*
    * local storage
    */
   RECT   rect;

   SetTextColor(hDC, hiTextColor);
   SelectObject(hDC, hHiFont);
   rect.left = words[index].x;
   rect.right = words[index].x + words[index].width;
   rect.top = words[index].y - pLay->top;
   rect.bottom = words[index].y + pLay->bot;
   FillRect(hDC, &rect, GetStockObject(WHITE_BRUSH));
   TextOut(hDC, words[index].x, words[index].y-pLay->hiAdj,
                        words[index].str, words[index].cnt);
}
/*
 * normal - display highlighted text normally
 */
void   normal(int index)
{
   /*
    * local storage
    */
```

```
    RECT    rect;

    SelectObject(hDC, hTextFont);
    SetTextColor(hDC, textColor);
    rect.left = words[index].x-2;
    rect.right = words[index].x + words[index].width;
    rect.top = words[index].y - pLay->top;
    rect.bottom = words[index].y + pLay->bot;
    FillRect(hDC, &rect, GetStockObject(WHITE_BRUSH));
    TextOut(hDC, words[index].x, words[index].y,
            words[index].str, words[index].cnt);
}


/*
 * caution - caution light a word
 */
void    caution()
{

    SetTextColor(hDC, wtTextColor);
    SelectObject(hDC, hHiFont);
    TextOut(hDC, words[curIndex].x, words[curIndex].y-pLay->hiAdj,
                        words[curIndex].str, words[curIndex].cnt);
}


/*
 * tstPrev - test if request to go to previous page
 */
BOOL tstPrev(HWND hWnd, WORD xPos, WORD yPos)
{

    /*
     * routines called
     */
    void    normal(int);        /* rewrite highlight text as normal */
    void    hiLight(int);       /* highlight a word of text */
    void    copyWord(short, char *); /* copy a story word into curWord */
    void    chgVocab(HWND);     /* change vocabulary */
    void    paint(HWND);        /* repaint the window */

    /*
     * external storage referenced
     */
    extern  int         pageType[]; /* page format type table */
```

```
/*
 * test if cursor is over the button
 */
if (((pButton->prev.top) <= yPos) &&
   ((pButton->prev.bottom) >= yPos) &&
   (pButton->prev.left <= xPos) &&
   (pButton->prev.right >= xPos))
{
   /*
    * previous button has been hit
    */
   /* back up 1 page */
   curPage--;
   curBack = curPage + BG_READ;
   pLay = pPageForms[pageType[curPage]];

   curIndex = pageIndex[curPage];
   while ( words[curIndex].type != ST_WORD)
      curIndex++;
   begIndex = curIndex;

   /*
    * display the new background
    */
   appState = STAT_READ;
   paint(hWnd);


   /*
    * switch to this page's vocabulary
    */
   chgVocab(hWnd);


   /*
    * move the word into the current word buffer
    */
   copyWord(curIndex, curWord);  /* copy the story word into curWord */

   trys = 0;  /* reset the trys counter */

   /*
    * log that the new page was selected
    */
   wsprintf(cBuf, "\nPrevious Page Requested - %s\n", curWord);
```

```
    wrtLog(hWnd, cBuf);
    wsprintf(cBuf, "Next Story Word - %s\n",curWord);
    wrtLog(hWnd, cBuf);
    return(TRUE);
  }
  return(FALSE);
}

/*
 * tstNext - test if request to go to next page
 */
BOOL tstNext(HWND hWnd, WORD xPos, WORD yPos)
{

  /*
   * routines called
   */
  void   normal(int);       /* rewrite highlight text as normal */
  void   hiLight(int);      /* highlight a word of text */
  void   copyWord(short, char *); /* copy a story word into curWord */
  void   chgVocab(HWND);    /* change vocabulary */
  void   begPerf(HWND);     /* start the performance */
  void   paint(HWND);       /* repaint the window */

  /*
   * external storage referenced
   */
  extern int       pageType[]; /* page format type table */

  /*
   * test if cursor is over the button
   */
  if (((pButton->next.top) <= yPos) &&
     ((pButton->next.bottom) >= yPos) &&
     (pButton->next.left <= xPos) &&
     (pButton->next.right >= xPos))
  {
     /*
      * next button has been hit
      */
     curPage++;
     /*
      * at the end of the book - start the performance
      */
     if (curPage >= numPages){
        begPerf(hWnd);
```

```
}else{
  /*
   * setup to begin reading on the next page
   */
  curBack = curPage + BG_READ;
  pLay = pPageForms[pageType[curPage]];
  curIndex = pageIndex[curPage];
  while ( words[curIndex].type != ST_WORD)
    curIndex++;
  begIndex = curIndex;

  /*
   * display the new background
   */
  appState = STAT_READ;
  paint(hWnd);

  /*
   * switch to this page's vocabulary
   */
  chgVocab(hWnd);


  /*
   * move the word into the current word buffer
   */
  copyWord(curIndex, curWord);  /* copy the story word into curWord */

  trys = 0;  /* reset the trys counter */

  /*
   * log that the new word was selected
   */
  wsprintf(cBuf, "\nNext Page Requested - %s\n", curWord);
  wrtLog(hWnd, cBuf);

  wsprintf(cBuf, "Next Story Word - %s \n",curWord);
  wrtLog(hWnd, cBuf);
 }
 return(TRUE);
}
return(FALSE);
}

/*
 * tstMic - test if request to change mic state
```

```
*/
BOOL tstMic(HWND hWnd, WORD xPos, WORD yPos)
{

  /*
   * routines called
   */
  void dspBack(HWND,WORD,int,int); /* display the background frame */
  int  micOn(HWND);          /* turn on the microphone */
  BOOL micOff(HWND);  /* turn off the microphone */


  /*
   * test if cursor is over the button
   */
  if (((pLay->mic.y) <= yPos) &&
     ((pLay->mic.y + pBack[BG_MIC_ON].height) >= yPos) &&
     (pLay->mic.x <= xPos) &&
     ((pLay->mic.x + pBack[BG_MIC_ON].width) >= xPos))
  {
     /*
      * mic button has been hit
      */
 if (userMic){
 /*
  * currently on - turn it off
  */
 userMic = FALSE;
 micOff(hWnd);
 dspBack(hWnd, BG_MIC_OFF, pLay->mic.x, pLay->mic.y);
 }else{
 /*
  * currently off - update its state
  */
 userMic = TRUE;
 if (machMic)
 micOn(hWnd);
 else
 dspBack(hWnd, BG_MIC_BUSY, pLay->mic.x, pLay->mic.y);
 }
       return(TRUE);
    }
    return(FALSE);
  }
```